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Bob Hoco Copy

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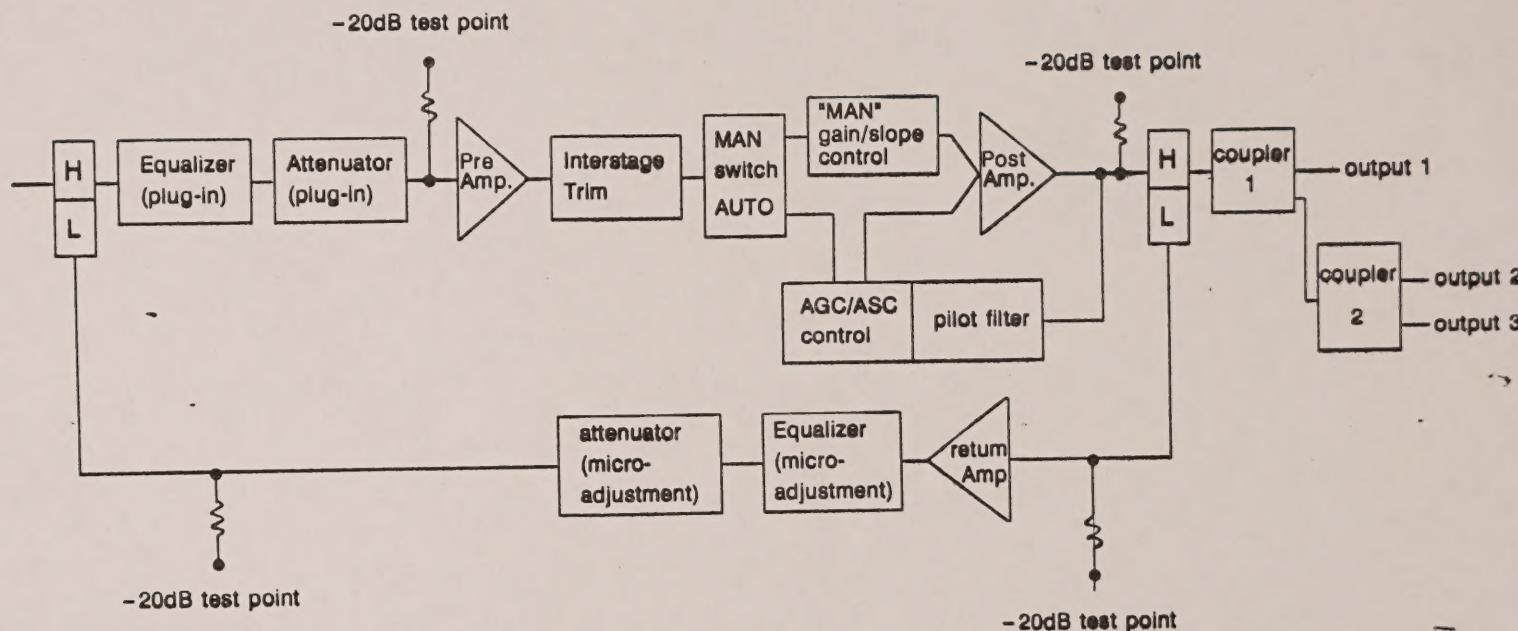
## MTA-550N/GS SERIES INSTALLATION MENU

### ■ FEATURES

- Power-doubling or push-pull amplification are available.
- 550MHz can be upgraded to 750 MHz, only the frame needs to be replaced.
- Built-in diplex filter for surge protection and two-way operation.
- Built-in -20 dB input and output directional set-up and points for more accurate set-up and monitoring.
- A plug-in automatic control module augments a built-in slope and gain compensator.
- Switching regulated power supply with automatic transient protection, overvoltage. Protection and current limiting circuitry for reliable operation.
- Plug-in interstage trim networks permit simple system frequency response error correction without affecting basic module alignment.
- Size and fin design allows for optimal heat dissipation.

1. Slope control modules : 0db for factory setting, (0,3,6,...20) can be purchased according to requirements.
2. Gain control modules : 0db for factory setting, (0,1,2,...20) can be purchased according to requirements.
3. Deplex filter : forward : 50-550Mhz, Reverse : 5-30Mhz.
4. Forward input test point : -20db, located behind the slope control and gain control, required input level can be adjusted by changing the ER and EQ modules.
5. Interstage trim : five types of modules can be selected for trimming the linear flatness. Default trimmer is provided for factory setting. Five modules are listed below :
  - a PEQ 1( 50-130 Mhz)
  - b PEQ 2(120-220 Mhz)
  - c PEQ 3(200-300 Mhz)
  - d PEQ 4(280-450 Mhz)
  - e PEQ 5( 50-550 Mhz)
6. AGC/ASC auto/man control modules.
7. Man gain/slope control : 10db adjustable.
8. AGC signal level LED indicators : when input level increases, LED indicator "Hi" is on. When input level decreases, LED indicator "Low" is on. When input level is maintained at a preset level, indicators are all off.
9. ASC signal level LED indicators :  
When input level increases, LED indicator "Hi" is on.  
When input level decreases, LED indicator "Low" is on.  
When input level is maintained at a preset level indicators are all off.
10. AGC/ASC gain/slope control.
11. AGC/ASC control board.
12. Pilot signal filter module.
13. Forward output test point (-20db).
14. Duplex filter.
15. Reverse output test point (-20db).
16. Reverse gain controller : 0db module factory setting is provided.
17. Reverse slope control : 0db module for factory setting is provided.
18. Reverse input test point (-20db).
19. Power fuse (input port) : 15A
20. Power fuse (output port 1) : 15A
21. Power fuse (output port 2) : 15A
22. Power fuse (output port 3) : 15A
23. Output coupler 1 (must be ordere)
24. Output coupler 2 (must be ordere)
25. 5A fuse for switching power.

## ■ FUNCTION BLOCK DIAGRAM



## ■ SPECIFICATIONS

## ● Forward Loop

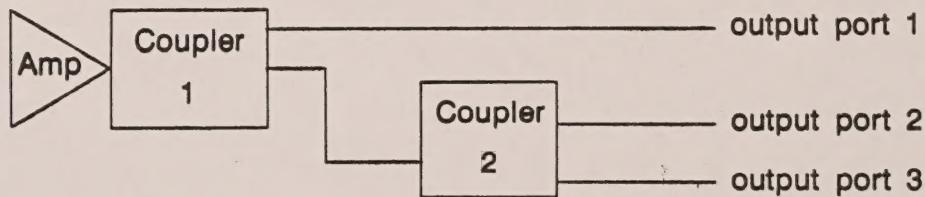
|                                       | 550GS/32D  | 550GS/32P | 550GS/28D      | 550GS/28P | Units |
|---------------------------------------|--|-----------|----------------|-----------|-------|
| Technology                            | power doubling   | push pull | power doubling | push pull |       |
| Bandwidth                             | 54-550   | 54-550    | 54-550         | 54-550    | MHz   |
| Response Flatness                     | ±0.5   | ±0.5      | ±0.5           | ±0.5      | dB    |
| Full Gain (MAN)                       | 32   | 32        | 28             | 28        | dB    |
| Full Gain (AUTO)                      | 28   | 28        | 24             | 24        | dB    |
| Attenuator (INPUT)                    | 0, 1, 2, ..... 10, 12, 14, 16, 18, 20 (550-55MHZ)        |           |                |           | dB    |
| Equalizer (INPUT)                     | 0, 3, 6, 9, 11, 12.5, 14, 15.5, 17, 18.5, 20 (550-55MHZ) |           |                |           | dB    |
| Gain Control (Man position)           | 10dB adjustable  |           |                |           | dB    |
| Slope Control (Man position)          | 10dB adjustable  |           |                |           | dB    |
| Auto Gain Control                     | ±3dB   |           |                |           | dB    |
| Auto Slope Control                    | ±3dB   |           |                |           | dB    |
| Output Coupler                        | jump, -3.5dB, -7dB, -10dB, -16dB                         |           |                |           | dB    |
| Composite Triple Beat (96dB $\mu$ V)  | -81  | -79       | -86            | -83       | dB    |
| Composite Second Order (96dB $\mu$ V) | -82  | -79       | -87            | -87       | dB    |
| Cross Modulation (96dB $\mu$ V)       | -96  | -84       | -91            | -94       | dB    |
| Noise Figure                          | 8  | 8         | 8              | 8         | dB    |
| Return Loss                           |  | 16        |                |           | dB    |
| Power Requirements @ 60VAC.           | 1  | 1         | 1              | 1         | A     |
| Hum Modulation                        |  | 70        |                |           | dB    |

## ● Return Loop

|                   |                 |     |
|-------------------|-----------------|-----|
| Technology        | push-pull       |     |
| Response Flatness | ±0.5            | dB  |
| Bandwidth         | 5-30            | MHz |
| Full Gain         | 20              | dB  |
| Gain Control      | 20dB adjustable | dB  |
| Slope Control     | 18dB adjustable | dB  |
| Noise Figure      | 8               | dB  |
| Return Loss       | 16              | dB  |

## ■ MODULE ASSEMBLY METHOD

1. For factory setting, coupler 1 is inserted in BR-550-0 as the only one output port.
2. Different modules of coupler 1 and coupler 2 can be selected to customize the number and db values of output ports, according to user's requirement, Please refer to the table of modules' combination.



| Coupler 1  | Coupler 2  | Output port 1 | Output port 2 | Output port 3 | Reverse port 2 | Reverse port 3 |
|------------|------------|---------------|---------------|---------------|----------------|----------------|
| BR-550-0   | —          | - 0.5 dB      | —             | —             | —              | —              |
| BR-550-3.5 | BR-550-0   | - 3.5 dB      | - 3.5 dB      | —             | - 3.5 dB       | —              |
|            | BR-550-3.5 | - 3.5 dB      | - 7.0 dB      | - 7.0 dB      | - 7.0 dB       | - 7.0 dB       |
|            | BR-550-7   | - 3.5 dB      | - 5.0 dB      | - 10.5 dB     | - 5.0 dB       | - 12.5 dB      |
|            | BR-550-10  | - 3.5 dB      | - 4.5 dB      | - 13.5 dB     | - 4.8 dB       | - 15.0 dB      |
|            | BR-550-16  | - 3.5 dB      | - 4.5 dB      | - 19.5 dB     | - 4.5 dB       | - 20.0 dB      |
| BR-550-7   | BR-550-0   | - 1.5 dB      | - 7.0 dB      | —             | - 8.5 dB       | —              |
|            | BR-550-3.5 | - 1.5 dB      | - 10.5 dB     | - 10.5 dB     | - 12.0 dB      | - 12.0 dB      |
|            | BR-550-7   | - 1.5 dB      | - 8.5 dB      | - 14.0 dB     | - 9.7 dB       | - 17.5 dB      |
|            | BR-550-10  | - 1.5 dB      | - 8.0 dB      | - 17.0 dB     | - 9.5 dB       | - 19.6 dB      |
|            | BR-550-16  | - 1.5 dB      | - 8.0 dB      | - 23.0 dB     | - 9.5 dB       | - 25.0 dB      |
| BR-550-10  | BR-550-0   | - 1.0 dB      | - 10.0 dB     | —             | - 11.0 dB      | —              |
|            | BR-550-3.5 | - 1.0 dB      | - 13.5 dB     | - 13.5 dB     | - 14.5 dB      | - 14.5 dB      |
|            | BR-550-7   | - 1.0 dB      | - 11.5 dB     | - 17.0 dB     | - 12.0 dB      | - 19.5 dB      |
|            | BR-550-10  | - 1.0 dB      | - 11.0 dB     | - 20.0 dB     | - 11.0 dB      | - 21.5 dB      |
|            | BR-550-16  | - 1.0 dB      | - 11.0 dB     | - 26.0 dB     | - 11.5 dB      | - 27.0 dB      |
| BR-550-16  | BR-550-0   | - 1.0 dB      | - 16.0 dB     | —             | - 17.0 dB      | —              |
|            | BR-550-3.5 | - 1.0 dB      | - 19.5 dB     | - 19.5 dB     | - 20.0 dB      | - 20.0 dB      |
|            | BR-550-7   | - 1.0 dB      | - 17.5 dB     | - 23.0 dB     | - 18.5 dB      | - 25.5 dB      |
|            | BR-550-10  | - 1.0 dB      | - 17.0 dB     | - 26.0 dB     | - 18.0 dB      | - 27.5 dB      |
|            | BR-550-16  | - 1.0 dB      | - 17.0 dB     | - 32.0 dB     | - 17.5 dB      | - 32.5 dB      |

## ■ ADJUSTMENT PROCEDURE

### A. Output level setting:

The output setting is based on system requirement, normal less than 100 db $\mu$ v.

### B. Input level setting :

Input level  $\geq$  output level - Amp gain + 4db(AGC loss)

Example : Assume bandwith 550Mhz, 28db amplified gain, 0.5 inch cable, and output level setting 98 db $\mu$ v.

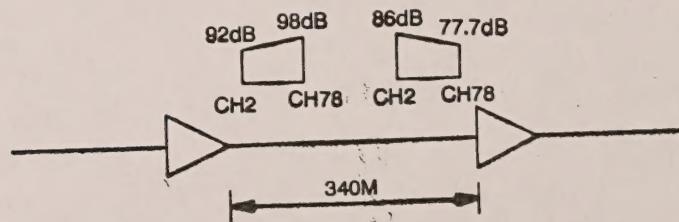
$$\text{Input level } \geq 98 - 28 + 4 = 74\text{db}$$

### C. Cable length : $\frac{\text{Amp gain} - 4\text{db(AGC loss)} - \text{modules loss} - \text{Interstage trim loss}}{\text{VH 550Mhz max loss value}}$

Example :

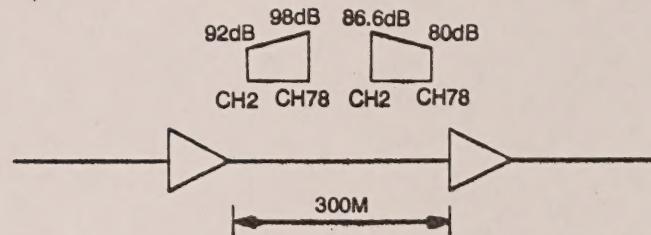
1) for one output port (coupler 1 use BR-550-0 0db modul)

$$\text{Cable length : } \frac{28 - 4 - 1.5 - 2}{5.97} = 3.4 \quad \text{about 340 M}$$



2) for two output port (coupler 1.use BR-550-3.5 — 3.5db module)  
 (coupler 2.use BR-550-0 — 0db module)

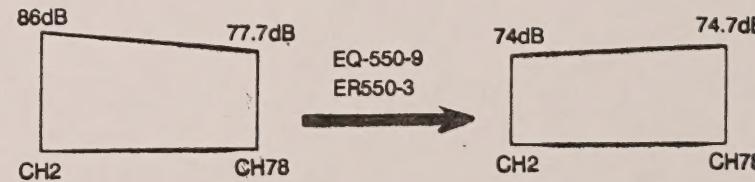
$$\text{Cable length : } \frac{28 - 4 - 3.5 - 2}{5.97} = 3.0 \quad \text{about 300 M}$$



#### D-1 MANUAL CONTROL ADJUSTMENT

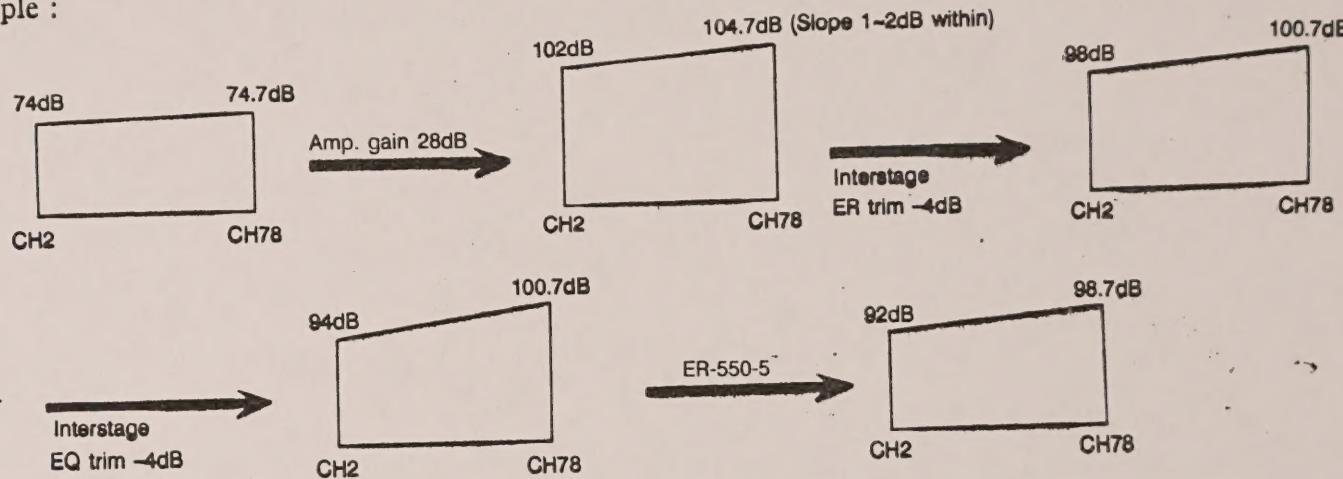
1. Measure the input T.P. and change the EQ/ER module value to make same the levels of high/low channels.

Example :



2. Auto/Man modules : slide the switch to MAN. Turn clockwise the gain controller and slope controller to the maximum, and turn each down for 4db to reflect the loss for the usage of AGC and ASC.

Example :



## D-2 AUTO CONTROL ADJUSTMENT

1. Man control adjustment procedure is finished.
2. Auto/man modules = slide the switch to "Auto"
3. Adjust the AGC/ASC control modules to satisfy the preset output level and slope.

4. If necessary, change the values of input EQ/ER ① ② modules to make all of the indicators off, the current state is in AUTO control function ( $\pm 3\text{db}$ ). If the indicators are not all off, please repeat step ③ to make all of the indicators off. A slight variance can be accepted based on the current temperature. If above  $25^\circ\text{C}$  a dim light of low indicator and below  $25^\circ\text{C}$  a dim light of HIGH indicator are acceptable.
5. If AUTO control is malfunctioning, slide the switch on MAN/AUTO control module to "MAN", and repeat the adjustment procedure listed in D-1.